



# ontheoutcrop

ISSUE 7, JULY 2009

**ontheoutcrop** is a Geological Survey of New South Wales (GSNSW) e-newsletter. For more information about newsletter items go to: <http://www.dpi.nsw.gov.au/minerals/geological>

**GEOSCIENCE INFORMATION** is the theme for this issue.

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## UPCOMING EVENTS

### NSW Mineral Exploration & Investment 2009 Conference, 13–14 August, Sydney



The Mineral Exploration & Investment 2009 Conference is a major biennial two-day conference which will feature the latest information on exploration initiatives, project developments and investment opportunities. The conference will be held at the Four Seasons Hotel, Sydney. Tony McPaul, Newcrest Mining Ltd, will give a key note address on *Growing the Cadia Valley Operations*.

Go to the [NSW DPI events page](#) for details.

View the [program and download a registration form](#) from the website.

### BHEI 2009 Conference — *Discovering the future*, 29 September–1 October, Broken Hill

The [Broken Hill Exploration Initiative \(BHEI\) 2009 conference](#) will be held at the Broken Hill Entertainment Centre, Broken Hill. There will be overseas and interstate speakers. Field trips cover the geology and mineralisation of the Olary Domain, Koonenberry Belt and Broken Hill Block and there will be a tour of the Pinnacles mine. Two core displays will feature the whole of the Broken Hill sequence (sedimentary cycles and the western mineralisation through the Rasp mine, Line of Lode, Broken Hill) and significant core from the Curnamona Province.

New products available at the conference include spectacular images produced from re-processing the existing radiometric data, and user friendly multi-spectral HyMap data. Other releases include:

- a new map of interpreted basement rock sequences across the Broken Hill region
- extensive geochemical data acquired from regional explorers
- gravity data with improved resolution
- interpreted three dimensional sections through the Broken Hill block

In addition, an extensive series of maps covering much of northwestern NSW from the Koonenberry project (see below) will be officially released.

Use the [BHEI 2009 conference link](#) to access [registration forms](#), the speaker program and excursion details.

Contact: Rob Barnes, Team Leader, Minerals, [rob.barnes@dpi.nsw.gov.au](mailto:rob.barnes@dpi.nsw.gov.au); 02 4931 6697



## Koonenberry Geological Mapping Project products

These products will be released at the [BHEI 2009 conference](#). They comprise 1:100 000 geology, 1:25 000 geology, 1:100 000 regolith and 1:250 000 solid geology map products, a bulletin with detailed geology and mineral system interpretations, plus a DVD data package. An interactive 3D model of the Koonenberry Belt will be displayed and there will be presentations on aspects of the Koonenberry Belt. These include the Delamerian Orogen in western NSW–Victoria, the Mount Wright volcanic arc and Koonenberry Belt mineral systems. A [3 day post conference field excursion](#) over the Koonenberry Belt is scheduled, 2–4 October.

Contact: Phil Gilmore, Senior Geoscientist, [phil.gilmore@dpi.nsw.gov.au](mailto:phil.gilmore@dpi.nsw.gov.au); 02 4931 6533.

## Minerals classification system feedback at SGA, 17–20 August, 2009, Townsville, Qld

Peter Downes will present a poster on [Mineral systems in New South Wales](#) at the international SGA 2009 conference, Townsville, to promote the New South Wales mineral system classification schema. See [Quarterly Notes 128](#) for details.

Contact: Peter Downes, Senior Geoscientist, [peter.downes@dpi.nsw.gov.au](mailto:peter.downes@dpi.nsw.gov.au)

## Hunter Earth Sciences Discussion Group (HEDG)

The next HEDG presentation will be given by Dr Judy Bailey (University of Newcastle) on *Mineral sequestration of CO<sub>2</sub>: the need to be viable*, on **Tuesday 25 August** at Customs House, Newcastle from 6pm with a 6.30pm start for the talks. You can subscribe to receive notices of the HEDG events.

Contact: Phil Gilmore, Senior Geoscientist, [phil.gilmore@dpi.nsw.gov.au](mailto:phil.gilmore@dpi.nsw.gov.au); 02 4931 6533.

## 37<sup>th</sup> Symposium on the Geology of the Sydney Basin, 6–7 May 2010, Pokolbin, NSW

The Coalfield Geology Council of NSW in conjunction with NSW DPI will hold the symposium at the Grande Mercure, Hunter Valley Gardens, Pokolbin, May 2010. It will cover geology, coal, coal seam gas; mineral, energy and groundwater resources; developments in geological technology; and geological aspects of the natural and urban environment relevant to the Sydney Basin. For more information go to:

<http://megms.com.au/sydbasin> or contact Marianne Harvey, [marianne.harvey@megms.com.au](mailto:marianne.harvey@megms.com.au).

**Organisers are calling for papers now.** Contact: Darren Hope, [darren.hope@maptek.com.au](mailto:darren.hope@maptek.com.au).

## Mines and Wines 2010 conference, 23–24th September, Mudgee, NSW

The third Mines and Wines conference will be held at the Quality Parklands Resort and Conference centre, Mudgee in 2010. The event is a premier technical gathering for mineral explorers working in the Tasmanides in Eastern Australia. Mudgee has a rich mining heritage and is surrounded by vineyards and iconic Australian landscape. Further information will be posted as it becomes available.

Contact: Rob Barnes, Team Leader, Minerals, [rob.barnes@dpi.nsw.gov.au](mailto:rob.barnes@dpi.nsw.gov.au); 02 4931 6697

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## NEW PRODUCTS AND SERVICES

### EROL — fast tracking the lodgement of exploration reports

The new on-line system for lodging exploration reports, [EROL \(Exploration & Environmental Reports Online Lodgement\)](#), was released on 18 June and is already in use by industry. **Training sessions** held in Sydney in June will be continued at Orange and Cobar during the first week in September. A training session for the coal industry is planned for late September at the NSW DPI Maitland office. Dates are to be advised.

**Book your expression of interest in a training session** with Joan Henley: [joan.henley@dpi.nsw.gov.au](mailto:joan.henley@dpi.nsw.gov.au).

See [Project Highlights](#) in this newsletter for details about this new service.

### State Resource Audit packages roll-out to local councils

The Land Use group has commenced the roll out of State Resource Audit reports, maps and data packages to local councils at Armidale-Dumaresq, Guyra and Uralla. These reports identify known coal, petroleum, minerals and extractive resources and operations, and also areas with enhanced potential for resource discoveries. Over 50 other reports are in progress. See [On the Outcrop Issue 4](#).

Contact: Cameron Ricketts, Assistant Director, Minerals and Land Use Assessment, [cameron.ricketts@dpi.nsw.gov.au](mailto:cameron.ricketts@dpi.nsw.gov.au), 02 4931 6703

## **New web page for monitoring mining title and tenement activity**

[Titles status reports](#) is a new web page which lists: current exploration titles and applications; those granted within the past months; those that have expired in the past months; and those due to expire.

Contact: David Agnew, Manager Coal & Petroleum Titles and Systems, [david.agnew@dpi.nsw.gov.au](mailto:david.agnew@dpi.nsw.gov.au)  
02 4931 6442

See [MinView Email Reminders and Email Alerts](#) for additional tenement monitoring aids.

## **Mineral systems of the Murray Basin**

The Geological Survey Report, GS2009/0559, *Mineral Systems of the Murray Basin*, applies a minerals systems approach to the known resources in the Murray Basin including mineral sand, bentonite, kaolin, gypsum, silica sands and salt.

Contact: John Whitehouse, Senior Geologist, [john.whitehouse@dpi.nsw.gov.au](mailto:john.whitehouse@dpi.nsw.gov.au); 02 4931 6710

## **New geophysics catalogue**

The [Geophysical Projects & Products catalogue](#) has been updated with information on statewide TMI tilt-filter imaging, the southern Gunnedah gravity survey, Rankins Springs and Yathong Trough seismic data, and extensions to the teleseismic coverage in NSW.

Contact: Dave Robson, Team Leader, Exploration Geoscience, [david.robson@dpi.nsw.gov.au](mailto:david.robson@dpi.nsw.gov.au); 02 4931 6717

## **Mineral Resource Projects NSW map**

This map will be released at the [NSW Mineral Exploration & Investment Conference](#) in August. The map features the main mineral, coal and petroleum projects, power stations, oil refineries, mineral processing plants, major electricity transmission lines and gas pipelines over the top of major geological provinces.

Contact: Peter Downes, Senior Geoscientist, [peter.downes@dpi.nsw.gov.au](mailto:peter.downes@dpi.nsw.gov.au); 02 4931 6708

## **Quarterly Notes 131 — a newly defined formation, Dunmore–Halls Creek district, northern NSW.**

Olistoliths in the Wisemans Arm Formation, Manilla 1:100 000 map sheet area, are redefined as a complex association of fault-bounded and folded limestone, limestone conglomerate, sandstone and metavolcanic rocks under the name of the Glen Bell Formation. Serpentinities are associated with the fault slivers. Implications of the study are a possible new terrane and evidence of a close spatial association with the Woodsreef Melange.

Contact: Bob Brown, Geoscientist, [bob.brown@dpi.nsw.gov.au](mailto:bob.brown@dpi.nsw.gov.au), 02 6738 8516

## **Thomson Orogen Explorers Guide**

The *Guide for mineral exploration through and within the regolith in the southwestern Thomson Orogen, NSW* represents a concise summary of the results of over six years research conducted by the CRC LEME in collaboration with the GSNSW. The guide can be downloaded free from the [CRC LEME website](#).

Contact: John Greenfield, Team Leader, Regional Mapping, [john.greenfield@dpi.nsw.gov.au](mailto:john.greenfield@dpi.nsw.gov.au); 02 4931 6728

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## **PROJECT HIGHLIGHTS**

### **GEOSCIENCE INFORMATION — WORK AND PROJECTS**

The **Geoscience Information** unit comprises the Geospatial Information and Knowledge Management teams which are responsible for providing essential geoscience products, services and on-line information to the exploration industry and the community. The unit is the end point for many projects developed in other areas of GSNSW and is the gateway to GSNSW geoscience information.

The many digital information layers behind GSNSW maps require complex technologies; well structured databases and efficient data delivery systems especially via the internet. Web services and other technologies which facilitate access to data between jurisdictions are under development. AuScope Ltd, is an Australian government NCIRS<sup>1</sup>-funded organisation tasked with the development of such IT infrastructure.

<sup>1</sup> National Collaborative Research Infrastructure Strategy

### **Geospatial Information**

Geospatial Information provides spatial and visualisation services, support and advice to the GSNSW geoscientific mapping, resource assessment, information delivery and promotional programs and NSW DPI — Minerals in general. It controls cartographic map production; the geological map spatial geodatabase; graphical and multimedia output for publications and promotions; and web and geoscience

product delivery. Data capture and quality control, GIS data management, DVD/CD ROM production and map printing all fall under this umbrella of responsibilities.

### **Current highlights of Geospatial Information activities and projects**

- Production of a **1:1.5 M** and a **1:3 M Surface Geology map of NSW**. This initiative by Geospatial Information will provide important data layers for both internal and external database systems.
- Production of a new **1:1.5 M and 1:3 M Mineral Resource Projects NSW** map replacing the 2003 version.
- Biannual production of **A3 Mineral and Petroleum Highlight maps** for print and web download.
- Completion of over 200 hundred diagrams, illustrations and tables for the **Koonenberry Bulletin** which will be accompanied by **22 geological maps for the Koonenberry project** due for release at the BHEI2009.
- Completion of the revision of the **NSW geological data model and ESRI geodatabase** to provide a consistent data capture and storage environment for geological mapping. The prototype is now being tested by end users. Associated ArcGIS Server technology will greatly improve centralised spatial data storage, editing and delivery capability.
- Evaluation and trial of simple **exif-based photo image management systems and technology**. Exif and equivalent image formats allow detailed and searchable descriptive information to be embedded in digital images, including spatial coordinates and cross links to databases. This has potential for creating spatial links to images of outcrops, and thin section, rock and mineral specimen sites etc.
- Simple map data downloads and improved information and links are being developed to upgrade the **Geoscience Products Catalogue** on the GSNSW web pages.
- Compilation of the GSNSW contribution to the **Lands Atlas** under production by the NSW Department of Lands.
- Design and production of a large swathe of promotional graphics including posters, flyers and multimedia products. Graphics for the NSW Mineral Exploration and Investment Conference and the Broken Hill Exploration Initiative 2009 are a high priority.


Contact: Guy Fleming, Team Leader, Geospatial Information, [guy.fleming@dpi.nsw.gov.au](mailto:guy.fleming@dpi.nsw.gov.au), 02 4931 6589

### **Knowledge Management**


Knowledge Management is responsible for the dissemination to the exploration industry, public and other government departments, of geoscience information generated from industry reporting and GSNSW projects. It manages the on-line services of DIGS, EROL and MinView and the storage and archiving of reports, maps, plans and heritage documents. It oversees the drill core storage facilities at Londonderry and Broken Hill and coordinates the web pages, geoscience databases, contacts database, educational activities and the GSNSW e-newsletter, **ontheoutcrop**.

#### **Geoscience information online**

DIGS, EROL and MinView are three GSNSW on-line services which significantly enhance information delivery to industry.


 **EROL**, the **Exploration & Environmental Reports Online Lodgement** facility, is a recent innovation that allows exploration companies to lodge their annual, final, part relinquishment and environmental reports on-line with attached documents and expenditure plans. EROL allows on-line report submission from anywhere an internet connection can be made. Reports are saved onto the department's servers, so access to reports under preparation can be gained from multiple locations using a confidential [registered user account](#). Other features are auto population of key fields and lookup tables for common text entry.

Detailed [Help Pages](#) with screen captures are available.

 **MinView** allows on-line access to the department's spatial geoscience datasets as well as current titles and title applications information. A new version of MinView was released in July 2008, which included a function allowing the application and payment for an exploration licence using an e-commerce facility. Other significant functions are the interactive [Email Alert and Email Reminder features](#), which allow registered users to receive reminders of impending licence expiries, or changes in title attributes, over user-defined areas.

MinView is a large, interconnected system between internal department and GSNSW databases, various software technologies and servers. For example, the size of the data layers required an innovative use of ESRI's ArcIMS© technology to enable zooming to enlargement scales such as 1:5 000 without the computational overheads normally required to render the entire state at that scale.

Development of MinView is ongoing and will result in the gradual improvement in its accessibility and the quality of the underlying datasets, specifically through the Cogent II project. A related major project is underway to rebuild the GSNSW field observations databases. This development will eventually see the unlocking of a significant amount of unreleased information, which will increase the value of MinView to industry and the general public. Presently, MinView has over 750 registered users.

 **DIGS** is a searchable on-line archive which enables users to view exploration reports, research material, maps and diagrams. A list of reports that have changed their confidentiality status to [Open File status](#) is placed on the web once a year. The DIGS system currently holds more than 125 000 reports, including nearly 600 000 individual documents, and has an additional 1.5 terabytes in a near on-line archive of high resolution source documents. The Cogent II project is presently mining DIGS® reports for geochemical and geophysical data for inclusion in GSNSW databases.

### **Archiving heritage items**

Knowledge Management is responsible under the NSW [Heritage Act 1977](#), for the conservation and archiving of the department's heritage maps and documents. A project to process heritage items and populate the Geological Heritage and Conservation Database and the State Heritage register will be completed by the end of 2009. A selection of the most significant heritage items can be viewed on the [Heritage maps web page](#).

### **Drill core libraries**

Knowledge Management oversees the drill core libraries at the [W B Clarke Geoscience Centre](#) at Londonderry and the [E C Andrews Drill Core Facility](#) at Broken Hill. The Londonderry centre has an efficient, highly mechanised retrieval system, and core sampling and cutting facilities. MinView shows the location of the state's drillholes, which ones are represented at the core library and their index number for retrieval. A link from MinView to DIGS provides access to reports containing the core downhole logs.

For access to drill core at the Londonderry library, contact: Steve Hall, Manager, Core Library, W B Clarke Geoscience Centre, [steve.hall@dpi.nsw.gov.au](mailto:steve.hall@dpi.nsw.gov.au), 02 4777 0322

Contact: Trisha Moriarty, Acting Team Leader, Knowledge Management, [trisha.moriarty@dpi.nsw.gov.au](mailto:trisha.moriarty@dpi.nsw.gov.au) 02 4931 6598.

## **OTHER PROJECTS**

### **National Virtual Core Library (NVCL) update**

The Hylogger™ alteration scanner which underlies the [AuScope National Virtual Core Library project](#) is fully operational and has attracted strong industry interest, specifically in core from the Peak Hill–Cobar and Captains Flat area. A web feature is being developed to allow digital assay data, high resolution hyperspectral data and corresponding photo-logs of drill holes to be accessible via the web.

GSNSW strongly encourages industry and researchers to consider integrating the HyLogger™ and drill core spectral analysis into their existing and future projects. Speak to Rob Barnes about the benefits.

Contact: Rob Barnes, Team Leader, Minerals, [rob.barnes@dpi.nsw.gov.au](mailto:rob.barnes@dpi.nsw.gov.au); 02 4931 6697

### **New Frontiers Broken Hill gravity survey**

The Broken Hill gravity survey covered 30 000 km<sup>2</sup> from the Mundi Mundi Plain to the Victorian–South Australian border. The survey covered the Broken Hill Block, Lock Lilly–Kars Belt and the interpreted southern extension of the Koonenberry Belt. The survey acquired over 5000 readings on a 2 x 2 km grid which progressed to a 4 x 4 km grid south of the Lock Lilly–Kars Belt.

Contact: Dave Robson, Team Leader, Exploration Geoscience, [david.robson@dpi.nsw.gov.au](mailto:david.robson@dpi.nsw.gov.au); 02 4931 6717

### **New Frontiers Oaklands Basin–Jerilderie region gravity survey**

The Oaklands Basin–Jerilderie region gravity survey covered 25 000 km<sup>2</sup> from Darlington Point region to the Victorian border covering highly prospective infra-basin with significant hydrocarbon shows and potential for geosequestration; possible (interpreted) granites which may have potential for geothermal energy; and the southwestern part of the Macquarie Arc. It also better defined the regionally significant Booteragandra Fault. Approximately 2700 readings were acquired on a 4 x 4 km grid with limited infill at 2 x 2 km.

Contact: Dave Robson, Team Leader, Exploration Geoscience, [david.robson@dpi.nsw.gov.au](mailto:david.robson@dpi.nsw.gov.au); 02 4931 6717

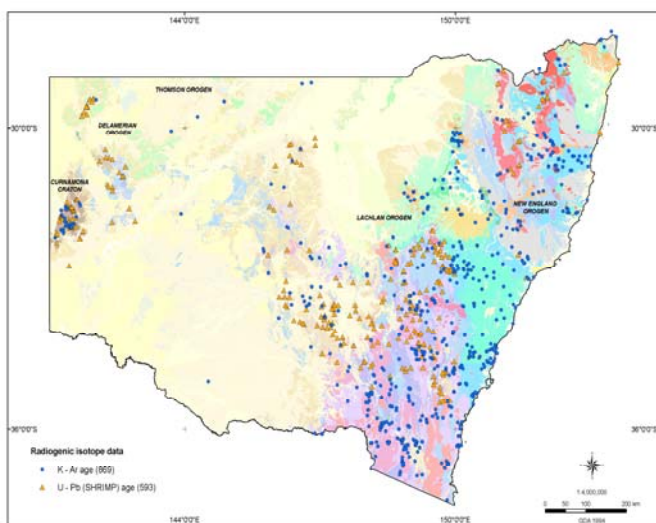
### **Oaklands Basin seismic survey**

High resolution reflection seismic data along eight east-west lines over 220 km were acquired in June 2009 from the Oaklands Basin. The aim is to better define the Oaklands Graben and image Permian and older structures.

Contact: Ricky Mantaring, Manager, Petroleum Geology, [ricky.mantaring@dpi.nsw.gov.au](mailto:ricky.mantaring@dpi.nsw.gov.au), 0249316686

## **COGENT II — Geoscience Data Management Project update**

The [COGENT II project](#) aims to provide easy access to all validated non-confidential corporate geoscientific data stored by the GSNSW and Coal & Petroleum Branches from a single spatial-based interface.



In the first year of the project, COGENT II has secured priority datasets and consolidated up to date, consistent, quality assured records. Systems used by Geoscience Australia and other geological surveys were researched and data management applications with respect to user requirements reviewed. The design and development of the data management system has commenced.

Map showing the distribution of U–Pb and K–Ar radiogenic isotope analyses in NSW with state-wide geology. These datasets have been compiled, spatially enabled and made generally accessible through the COGENT II project.

Contact: Phil Gilmore, Senior Geoscientist, [phil.gilmore@dpi.nsw.gov.au](mailto:phil.gilmore@dpi.nsw.gov.au) 02 4931 6533

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## **RECENT EVENTS**

### **Macquarie Arc Conference 2009, 13–21 April, Orange, NSW**

The [Macquarie Arc conference](#) successfully attracted over 30 overseas and 80 local delegates whose input greatly extended the understanding of the Macquarie Arc with a view to finding new mineral deposits.

### **Exploration in the House, Parliament House Theatre, 18 June, Sydney**

The EITH seminar was attended by over 120 delegates from the exploration industry and associated stakeholders. NSW Primary Industries Minister, Ian Macdonald, gave the opening address.

### **NSW Resource Audit Project presentation**

Iain Paterson and Cressida Gilmore gave a presentation about the NSW Resource Audit Project to the Illawarra Branch of the Institute of Quarrying Australia at the Shell Harbour Workers Club, 21 July.

### **GSNSW applied geochemistry work presented at symposium, Canada**

Dr Phillip Blevin presented a paper on *The primacy of magma compositions in determining the Re content of molybdenite* at the [24th International Applied Geochemistry Symposium](#) in May at Fredericton, Canada. Phil participated in a workshop on isotope techniques and field trips which examined some classic intrusion related mineral systems with similarities to the New England region, NSW.

Contact: Phil Blevin, Research Scientist, [phil.blevin@dpi.nsw.gov.au](mailto:phil.blevin@dpi.nsw.gov.au); 02 4931 6585

### **Teaching granite metallogeny in the CODES Master of Economic Geology course**

Dr Phillip Blevin was in Hobart in June, along with Lesley Wyborn (GA), to teach the igneous metallogeny portion of the [Ore Deposit Geochemistry, Hydrology and Geochronology](#).

Contact: Phil Blevin, Research Scientist, [phil.blevin@dpi.nsw.gov.au](mailto:phil.blevin@dpi.nsw.gov.au); 02 4931 6585

### **NSW DPI participates in scientific exchange with China**

Dr Ian Percival spent three weeks in March with Professor Zhan Renbin at the Nanjing Institute of Geology and Palaeontology, China, under a scientific exchange agreement. Their studies on the Ordovician faunas of eastern Australia and China (particularly South China) emphasised the biogeographic affinities of the two regions. A paper is due for publication in *Alcheringa* and a second paper is under review. Professor Zhan will be visiting Australia under the agreement in February 2010.

Contact: Ian Percival, Principal Research Scientist (Palaeontologist), [ian.percival@dpi.nsw.gov.au](mailto:ian.percival@dpi.nsw.gov.au), 02 4777 0315

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## TAKE NOTE!

### MinView Internet Explorer 8 browser related issues

On opening the MinView map screen from the MinView Entry Portal, users may need to click on the 'Show Legend' icon to display the correct legend view. All views may default to the 'Bookmarks' legend.

When downloading data from MinView, add **.zip** to the filename before saving the file.

### EROL note

There is a string length limitation up to 10 characters for the 'Estimated Expenditure' field. Avoid using '\$', commas, extra spaces; and round to the nearest dollar value.

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## PRODUCTS AND ENQUIRIES

### Internet product catalogue

The online [Geoscience Products Catalogue](#) includes over 240 hard copy maps and over 70 geoscience data packages (including geophysical data) on CD or DVD ROM.

### Enquiries about purchasing products

Maps and data packages: [geoscience.products@dpi.nsw.gov.au](mailto:geoscience.products@dpi.nsw.gov.au): Tel: 02 4931 6503

Geophysical images and data: [geophysics.products@dpi.nsw.gov.au](mailto:geophysics.products@dpi.nsw.gov.au): Tel: 02 4931 6717

Counter sales: [mineralpublication.orders@dpi.nsw.gov.au](mailto:mineralpublication.orders@dpi.nsw.gov.au) Free call: 1300 736 122 Tel: 02 4931 6666

Online sales: <http://www.shop.nsw.gov.au/index.jsp>

### General enquiries about products and services

Contact: Michael Hallett, [michael.hallett@dpi.nsw.gov.au](mailto:michael.hallett@dpi.nsw.gov.au): Tel: 02 4931 6724

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## SUBSCRIPTIONS

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (July 2009). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of NSW Department of Primary Industries or the user's independent adviser.

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